

ABSTRACT

An EDI device includes a composite electrode enclosed within the cylinder shell of the device. The EDI inner module preferably has one concentrate center pipe as the electrode in the center axis and at least one layer of anion/cation exchange membranes and a support frame in concentrate/dilute chambers wound around the center pipe. The electrode plate is inside the encircled cylindrical shell (isolating vessel). It is connected to an electrical contact plate located in the shell. Either the anode or cathode can be set in the center pipe, and the other electrode can be set in the vessel or shell lining. The electrical contact plate also contacts an electrical contact reed located on the vessel cover when the cover is connected to the shell. The electrical contact plate provides a reliable conductive bridge between the contact reed and the electrode plate and thus passes DC from the contact reed to the electrode plate. The electrical contact plate can be at least one plate and is preferably shaped to fit against the cylindrical vessel lining. The electrode plate is integrated with the vessel to simplify the whole structure and improve the reliability of the electrical contact.